

CLAIMS:

1. A cooled high-pressure gas-discharge lamp, at least comprising a cooled lamp envelope (43) that seals off hermetically a discharge chamber (431) filled with a gas, there being, at least in the discharge chamber (431), a non-uniform temperature distribution at the time of the gas discharge, and comprising a cooling means (7) having a coolant, which
5 cooling means (7) produces a directed flow (9) of coolant, characterized in that a liquid coolant acts on the envelope (43) of the lamp, the lamp can be operated at a higher power and the flow (9) of coolant is such that, when the power consumption of the lamp is increased, any devitrification of the envelope (43) of the lamp and any condensation of the gas is substantially prevented.
- 10 2. A high-pressure gas-discharge lamp as claimed in claim 1, characterized in that the high-pressure gas-discharge lamp is a short-arc lamp for projection purposes.
3. A high-pressure gas-discharge lamp as claimed in claim 1, characterized in
15 that the flow (9) of coolant is controlled, and/or is driven in a closed circuit, by the cooling means (7) as a function of the power consumption of the lamp.
4. A high-pressure gas-discharge lamp as claimed in claim 1, characterized in
20 that the coolant flow (9) is directed straight onto at least a region of the lamp envelope (43) that is situated above the discharge chamber (431) and is at the highest temperature.
5. A high-pressure gas-discharge lamp as claimed in claim 1, characterized in
that the region that is above the discharge chamber (431) in the particular installed position of
the lamp has a better heat-transfer coefficient than the region situated below the discharge
25 chamber (431).
6. A high-pressure gas-discharge lamp as claimed in claim 5, characterized in
that means are arranged in the region below and/or above the discharge chamber (431),

and/or the lamp envelope (43) is sized, such that the heat-transfer coefficient at the point(s) in question can be acted on.

7. A high-pressure gas-discharge lamp as claimed in claim 6, characterized in
5 that the wall thickness of the region that is situated above the discharge chamber (431)
increases down to the region situated at the bottom.
8. A high-pressure gas-discharge lamp as claimed in any of claims 1 to 3,
characterized in that homogenization of the temperature distribution in the discharge chamber
10 (431) takes place as a result of the lamp being rotated about the imaginary axis extending
between the opposing tips (411, 421) of the electrodes.
9. A high-pressure gas-discharge lamp as claimed in any of claims 1 to 3,
characterized in that homogenization of the temperature distribution in the discharge chamber
15 (431) takes place as a result of the lamp being operated in the region of so-called acoustic
resonances.
10. A lighting unit for lighting and/or projection purposes having at least one
high-pressure gas-discharge lamp as claimed in any of claims 1 to 9.